section interfere in any way with the status of the person as a member of this Society.

The special expenses of each section shall be borne by the group of members composing it, and this Society shall not be liable for any debts incurred by any section.

NOTICE OF DR. DREYER'S BIOGRAPHY OF TYCHO BRAHE.

By Torvald Köhl.

The Director of the Armagh Observatory in Ireland, Dr. J. L. E. Dreyer, whose native country is Denmark, has not long ago written an excellent work under the title: Tycho Brahe, A Picture of Scientific Life and Work in the Sixteenth Century. 8vo. It has been published by the Editors Adam and Charles Black in Edinburgh and appears, as might be expected from that firm, in a very nice shape. The work is dedicated to Ralph Copeland, the distinguished Astronomer Royal for Scotland, a friend of the author, and consists of xvi + 405 pages.

The book is prettily illustrated by several woodcuts, representing: Hveen at the time of Tycho Brahe; Uraniborg and Grounds; Uraniborg from the East; Plan of the Ground Floor of Uraniborg; Stierneborg, seen from the West; Plan of Stierneborg; The Tychonic System of the World; Gemma's Astronomical Ring; Armillæ a Equatoriæ Maximæ; Sextans Trigonicus; Transversal Divisions. Besides the likeness of Tycho Brahe, found in England in 1876, the work contains some superb reproductions of photographs: Mural Quadrant; Castle of Benatky; Villa of Ferdinand I; Tomb of Tycho Brahe.

Dr. Dreyer is building on a deep study of the works of Tycho Brahe and knows to the least details all that has been written about the famous Danish astronomer. The book is brightly written and we confidently recommend it to the members of the Astronomical Society of the Pacific as being of great historical interest. With much ability the author guides the reader through the dark age in which the "reformer of observational astronomy" dwelt on our planet.

After having treated "The Revival of Astronomy in Europe" the author gives an interesting description of Tycho Brahe's

youth. It is pretty well known how the heaven itself claimed the attention of the young TYCHO. "On the 21st of August, 1560, an eclipse of the sun took place, which was total in Portugal, and of which CLAVIUS has left us a graphic description. Though it was only a small eclipse at Copenhagen it attracted the special attention of TYCHO, who was then only 14 years old. When he saw the eclipse take place at the predicted time it struck him as something divine that men could know the motions of the stars so accurately that they could long before foretell their places and relative positions."

But the lively mind of the young student was soon drawn in other directions, and from the 30th day of December, 1570, till November, 1572, we do not possess a single astronomical observation made by TYCHO BRAHE, while during this time he worked with great energy at chemical experiments; and now a most unusual and startling celestial phenomenon was necessary to rouse him to renewed exertion and show him his real position in future as a diligent laborer in astronomy. This phenomenon was the appearance of the new star of 1572.

In a most attractive manner Dr. DREYER tells this important chapter of the great astronomer's life.

Perhaps any one may think that too much space in the following chapters has been devoted to the consideration of the astrological fancies of the Middle Ages; but doubtless the author is right when he in the Preface, with regard to this point, states: "If the study of the history of science is to teach us anything, we must make ourselves acquainted with the by-paths and blind alleys into which our forefathers strayed in their search for truth, as well as with the tracks by which they advanced science to the position in which our own time finds it."

The author attains his purpose which is to let the reader feel the same veneration for his hero as he feels himself, and he succeeds in distributing praise and blame in a moderate and wise manner. Of course the contest resulting in TYCHO BRAHE'S departure from his native land, to which he never returned, has been treated with much extension in the chapter on "The last years at Hveen, 1588–1597." From these earthly troubles it is encouraging to turn to the celestial works of that time. The improtance of TYCHO BRAHE'S scientific fights and victories has been inculcated in a drastic manner by the apparently so singular words, p. 175: "The Copernican System as set forth by

COPERNICUS, therefore, did not advance Astronomy in the least; it merely showed that it was impossible to calculate the motions of the planets without having the origin of the co-ordinates in the centre of the earth. But of proofs of the physical truth of his system, COPERNICUS had given none, and could give none; and, though there can hardly be any doubt that he himself believed in the reality of the earth's motion, it is extremely difficult to say of most of his so-called followers whether they had any faith in that motion or merely preferred it for geometrical reasons.

Though against his own wishes TYCHO BRAHE has contributed very much to the success of the Copernican system, for the numerous and most accurate observations made by the Danish astronomer on his little island in the Sound between Seeland and Scania are the source, from which JOHANNES KEPLER deduced his renowned laws. "ARCHIMEDES of old had said, 'Give me a place to stand on, and I will move the world?' TYCHO BRAHE had given KEPLER the place to stand on, and KEPLER did move the world!" On his death-bed the great observator several times exclaimed:

"Ne frustra vixisse videar!"

His death occurred on the 24th day of October, 1601. The future will bear witness that he did not live in vain.

As his countryman, I allow myself to congratulate the author, thanking him heartily for his excellent work.

ODDER, DENMARK, 1891, April 15.

THE PERIOD OF THE ROTATION OF THE SUN NEAR THE POLES, AS DERIVED FROM THE CORONAS OF 1878 AND 1889.

BY PROFESSOR FRANK H. BIGELOW.

In the *American Journal of Science* for November, 1890, the formulae for discussing coronas, and the results obtained by a study of the photographs taken during the eclipse of July 29, 1878, were presented and fully explained. In this paper the conclusions and the deductions to be derived from the coronas of Jan. 1, 1889, and Dec. 22, 1889, are added, with the period of the rotation of the Sun as found from these three coronas.